# *The Cooper Union*
# 1989 *National Survey of*
# WOMEN ENGINEERS

The Albert Nerken
School of Engineering
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# THE COOPER UNION 1989 NATIONAL SURVEY ON WORKING WOMEN ENGINEERS

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## METHODOLOGY

The Cooper Union Survey of Women in Engineering was developed and conducted by The Cooper Union for the Advancement of Science and Art, New York, by Dr. Eleanor Baum, dean of the college's Albert Nerken School of Engineering, with Lynn Appelbaum, director of Public Affairs.

Consultation on the questionnaire design and survey methodology was provided by Research & Forecasts, Inc.

The Survey of Women Engineers was conducted through the mail, with 4,000 surveys randomly distributed nationwide to members of the Society of Women Engineers (SWE) on April 24, 1989.

Completed questionnaires were returned to Cooper Union's Office of Public Affairs by the cutoff date of June 10, and were included in the data analysis that formed the basis of this report.

The return rate from 2077 respondents (52%) is unusually high for a mail questionnaire.

Data tabulation and analysis was provided by Microtab, Inc., Atlanta, Georgia.

This was one of two surveys taken simultaneously--the other survey polled women undergraduate engineering students.

## DEMOGRAPHICS OF THE WORKING WOMAN ENGINEER

Of those responding, more than two thirds of working women engineers are 35 or younger. 57% received their bachelor degree in the past 10 years.

Of all respondents, 54% are married--8% are divorced.

Nearly a third of the respondents have a graduate degree in addition to an undergraduate engineering degree. Only 5% hold a Ph.D.

Nearly 3/4 are members of other technical societies such as ASME (American Society of Mechanical Engineers) and IEEE (Institute of Electrical and Electronic Engineers). 16% hold a Professional Engineering License, and toward that end, another 26% have taken the first test (EIT) for licensing.

98% are U.S. citizens. 88% are Caucasian, 5% are Asian, 2% Hispanic and 2% African American.

89% are employed full time, with 93% of those in an engineering related field. Of the 4% employed part time, nearly two thirds do so to spend more time with their children. Only 2% said that they were unable to find suitable work.

The most common areas of engineering specialization were from an option of 35 areas were: Mechanical (9%), Management or Business Administration (7%), Electrical or Electronics (9%), Computer Science (6%) Environmental/ Sanitary (6%) Civil (5%), Aerospace (4%) and Chemical (4%).

53.5% are employed in private industry. 13.3% work for federal, state and local governments, and 6.8% work in academia. Utilities employ 7% of the respondents. 11.3% are consultants. Only 2.1% are self-employed.

For 34% of the respondents, the major portion of their work is related to aerospace, computers and defense.

Respondents were given a selection of 25 categories to describe the major specialty area of their employers From those, 13% were involved in research and development; and 9% in construction or civil engineering; and 18% in electrical, electronics or telecommunications.

Nearly two thirds of the women engineers have been working for less than 10 years. Only 6% have been employed for 20 years, or more.

## CAREER PROFILE

89% work full time, with 93% in an engineering-related job.

### Salary

82% said that their engineering career has met the financial expectations they initially had. 71% earn under $50,000. 19% earn between $50,000 and $70,000 and 5.3% earn over $70,000.

44% of women engineers 35 years old or younger earn under $40,000; Of the respondents over 35 years old, 59% earn over $50,000 and 30% earn over $70,000.

### Job Function

18% of women engineer respondents cite management as their principle job function; design, 16%; analysis, 14%; and development, 13%. Only 4% list teaching as their principle job function.

40% have some supervisory responsibilities--19.5 % supervise a project or section,12% supervise a team or a unit, and 8% manage a major department or division.

### Frequency of Job Change

Since their undergraduate education, 32% of the respondents had 3 employers or more. Of women 35 years old or younger, 21% indicated that they had at least 3 employers since college.

### Travel

Over half take overnight business trips monthly. One fifth of those are away 3 to 5 nights each month.

### Networking with Women

59% of the respondents were able to network with other women engineers when they got out of college. In their current position, 75% said they networked with other women engineers.

## CAREER EXPECTATIONS

When asked to list their top three reasons for choosing the engineering profession, respondents said they were motivated to study engineering for several reasons: 72% wanted to do interesting work; 70% liked the challenge of solving problems; 58% expected to earn a good salary; 19% wanted a profession that was transferable throughout the world; and 13% expected opportunities to solve societal problems. Only 1% entered the career to meet men.

## GENDER ISSUES IN THE WORKPLACE

70% felt that they have to work harder than male engineers doing comparable jobs (25% strongly agreed). 36% of those over 35 agreed strongly with this, as opposed to only 20% of those under 35.

Half believed that they view ethical issues differently than male engineers.

30% felt alone or isolated because of gender and one third agreed that they felt excluded from a decision-making capacity by males in the organization.

Three quarters believed that their ideas were given as much consideration as their male colleagues and that their suggestions and complaints were taken seriously by male supervisors.

Although 70% of the respondents agreed that they were paid comparably to male engineers doing the same work, 35% felt that promotions did not come at a comparable rate to males and only 59% believed that merit raises were gender-blind.

39% believed that they were penalized professionally if they took maternity leaves.

Only 12% found business travel with male colleagues to be uncomfortable. More than a third believed that their male colleague's wives felt threatened by them.

The survey indicated that harassment in the workplace is prevalent. 17% of the women strongly agreed that they have been subjected to some form of harassment because of gender, while 39% somewhat agreed that this was true. Only 18% strongly disagreed with this statement.

Despite these beliefs, 39% felt they can rise to the top of their organization.

## JOB SATISFACTION

In spite of the prevalence of the gender issue in the work place cited above, the survey results indicate an extremely high level of job satisfaction among women engineers.

89% felt their profession is respected. 87% said that their jobs were interesting. 85% felt they do important work.

More than 80% say the profession has met their earning expectations. In strong agreement were 40% of those employed in private industry, and nearly one third in both government and academia.

Two thirds of the respondents agreed that engineering met their undergraduate expectations.

However, 47% felt that they were not used to their fullest potential in their jobs, and one third felt they were over qualified for their present job.

## PERSONAL PROFILE

### Support to Study Engineering

When asked to identify individuals supportive of their decision to study engineering, respondents said they received most of their support from mothers (66%) fathers (69%), and other family members (40%).

52.6% indicated they had a family member who is or was an engineer. Of those, fathers made up 29% ; brothers 18%; sisters 6.5% and mothers 0.6%.

In high schools, support was substantially lacking-- Women describe only 47% of their high school teachers and only 27% of the guidance counselors as being supportive.(38% of guidance counselors were neutral and 22% were discouraging.)

In college, only 46% identified undergraduate math and science professors as supportive (41% neutral), and 54% described their engineering professors as supportive (29% neutral). More than half described the environment in their undergraduate college as supportive (29% were neutral and 9% were actually discouraging.)

### Self-Perception

Most women engineers expressed a positive attitude about themselves. 92% agreed that being an engineer does not decrease their femininity (64% strongly agreed) and 60% perceived themselves as physically attractive women, although 40% believed that other people perceive them as less feminine because they are engineers (40% of those under 35 thought they were perceived as less feminine, compared with only 27% over age 49.)

90% agreed that they had been good students. About 80% see themselves as leaders and assertive. 52% indicated that they have always been confident individuals, with 52% describing themselves as having been "tomboys."

Over two thirds felt that their engineering profession intimidated people whom they met socially.

### Outside Interests

The survey findings revealed that women engineers have interests outside their profession. Over a two week period, 85% has prepared a complete meal for family or friends, 72% had participated in a sport or physical activity, 62% shopped for clothes, 51% finished a non-technical book, 41% went to the movies and 32% went to a beauty salon. The survey also indicated that 71% did not use paid cleaning help at home on a regular basis.

Although the respondents expressed a high job satisfaction with the engineering profession and other outside interests, almost 50% believed that they were left with too little free time to pursue other interests.

## MARRIAGE AND THE FAMILY

54% of the respondents were married at the time of the survey, 8% divorced, and 36% single. Of the 33% who have children under the age of 18, 14% had one child; 9% had two children; 2% had three. 22% had no plans for children.

Of those women who are or have been married, 66% married men who were educat as engineers or scientists. 68% perceived their husband's profession to be as prestigious as theirs. 15% perceived their husband's profession to be more prestigious. Only 14% perceived their husband's profession to be less prestigious than theirs.

30% said that their husband had less formal education than they.

61% said they earned salaries equal to or greater than their husband's salary. (20% earned equal salaries.)

66% also described their husbands as "equal partners" in the household responsibilities, with only 34% describing their husbands as equal in the child raising responsibilities.

Over two thirds of the women said they'd leave their current job to move with their husband if he received an attractive job offer across the county. (19% said they wouldn't move). 60% said their husbands would move across country if the women were made an attractive job offer.

Only 4% of the women responded that their work created some serious conflict in their marriage, with 15% agreeing somewhat, and 22% disagreeing somewhat.

19% felt that their husband or boyfriend found it difficult to deal with the fact that most of the woman engineer's business colleagues are men. 50% strongly disagreed with this statement.

Of the 4% who indicated that they work part time, nearly two-thirds said they did so to spend more time with their children.

85% responded that their place of employment did not have child care facilities. About 50% of the employers provided a flex-time policy.

## CONCLUSIONS

The survey findings indicate a high level of satisfaction among working women who pursue engineering careers. Most believe that their profession has met their expectations, and that it offers interesting and important work and opportunities to learn and grow.

The majority of women are satisfied with their salaries and believe that they are paid comparable salaries to men doing similar work.

However, gender issues are still prevalent in the work place, with nearly two thirds believing that they have to work harder than male engineers doing comparable jobs.

A third of the women feel alone and isolated because of their gender and feel excluded from decision-making. Nearly half believe that they are penalized professionally if they take a maternity-leave.

More than half have experienced some form of harassment on the job.

The survey indicates insufficient support systems for young women who express an interest in pursuing engineering careers.

More than half of the women engineers had family members who were or are engineers. Most described their parents as very supportive of their decision.

However, respondents indicate that support was lacking from high school math and science teachers, and, more apparently, from high school guidance counselors. Clearly, there is a need to provide greater support for women at this level.

The survey also indicates that there is a need to create a more supportive environment in college engineering programs. Just over half described their undergraduate college environment and professors as supportive. Nearly a tenth described these as discouraging.

There is a need for more female role models in academia. Nearly three fourths say networking with other women in the workplace is important.

Women engineers have a high level of self esteem. Most perceive themselves as feminine and attractive, although they agree that others perceive them as less feminine because they are engineers. Almost all were good students, leaders, assertive and confident.

Most participate in other activities outside of their profession, such as sports, cooking, reading and shopping.

However, many say that their work creates some serious conflict in their marriage and most married men who were engineers or scientists. Nearly two thirds of respondents regard their husbands as equal partners in household responsibilities, but still assume most of the burden for child care.

## THOUGHTS FROM DR. ELEANOR BAUM, DEAN, THE ALBERT NERKEN SCHOOL OF ENGINEERING THE COOPER UNION

We, in the engineering education profession, industry and government, must put out a call for action to alert young women and the public at large about the positive aspects of the engineering profession.

The Cooper Union survey revealed a high percentage of women in engineering who had a family member in the profession. This leads me to believe that if young women understand what engineers do, there is a greater likelihood they might choose this career path. Therefore, we must go beyond the profession to educate the public at large about engineering

The first responsibility lies with engineering schools and with the profession, itself. They must become more involved in outreach programs in local communities to encourage young people, especially young women, to study engineering.

On a more direct level, we need to educate high school guidance counselors, who were described in both surveys as being less than supportive of young women interested in the profession. This means developing better recruitment materials for counselors to help explain what engineers do and what the rewards of the profession are.

In addition, it is imperative that we educate high school math and science teachers about the rewards of the profession, to encourage both male and female students to consider engineering careers.

The survey indicated that many of the women engineers are leaders, outstanding students, confident and assertive. Still, we need to put out the word that young women don't have to be extraordinary in math or science to study engineering. Just as average male students are encouraged to study engineering, there is also room for women who are average students.

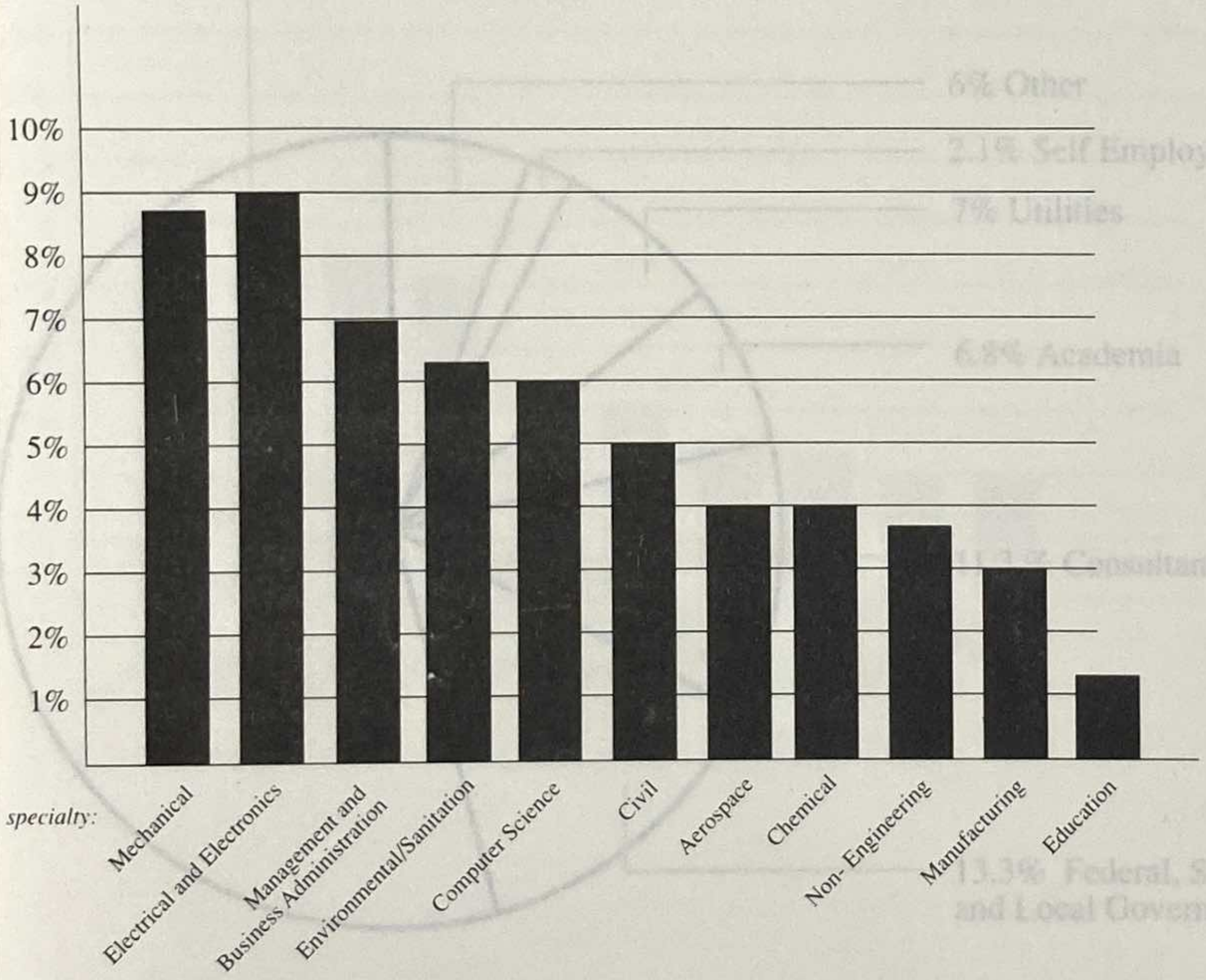
The survey results indicated an urgent need for more role models for female students at both the high school and university levels. This can be achieved if women engineers in professional societies increase their contact with high schools and college students.

Additional funding will serve as a further incentive to encourage women to study engineering. Monies should be allocated for more graduate fellowships for women. And government loan programs should be made available as incentives, to encourage women to enter academia to teach engineering.

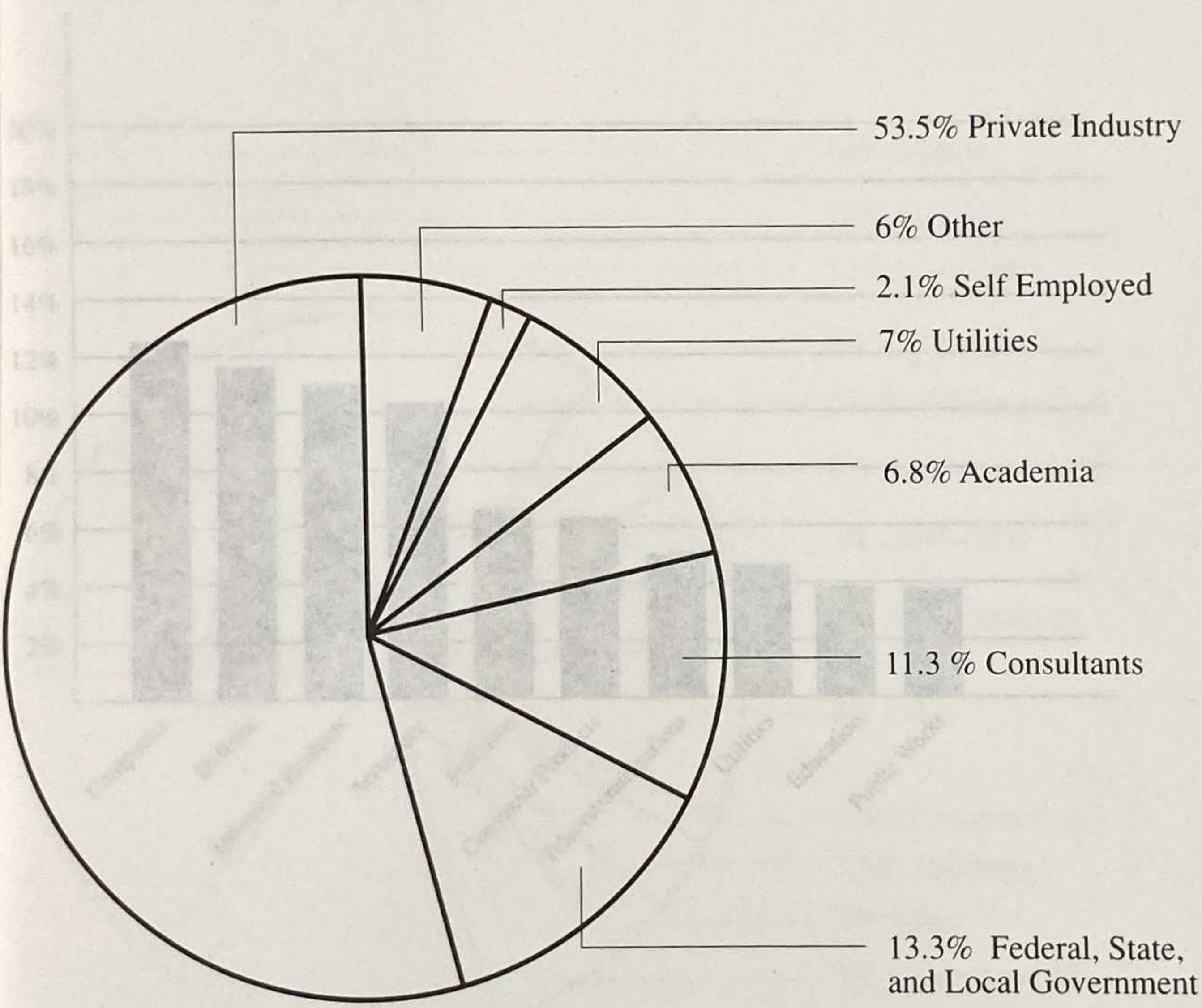
In the work place, it is essential for industry to be more sensitive to women with children. This means providing women with flexible work schedules, as well as creating more part-time positions. Because of rapid technological developments in engineering, professional societies and industry need to provide re-entry orientation and re-education for women returning from maternity leave.

The important task at hand is to communicate the message that women should consider engineering careers, not only because of the vital national need, but more importantly, because it is a satisfying and rewarding profession.

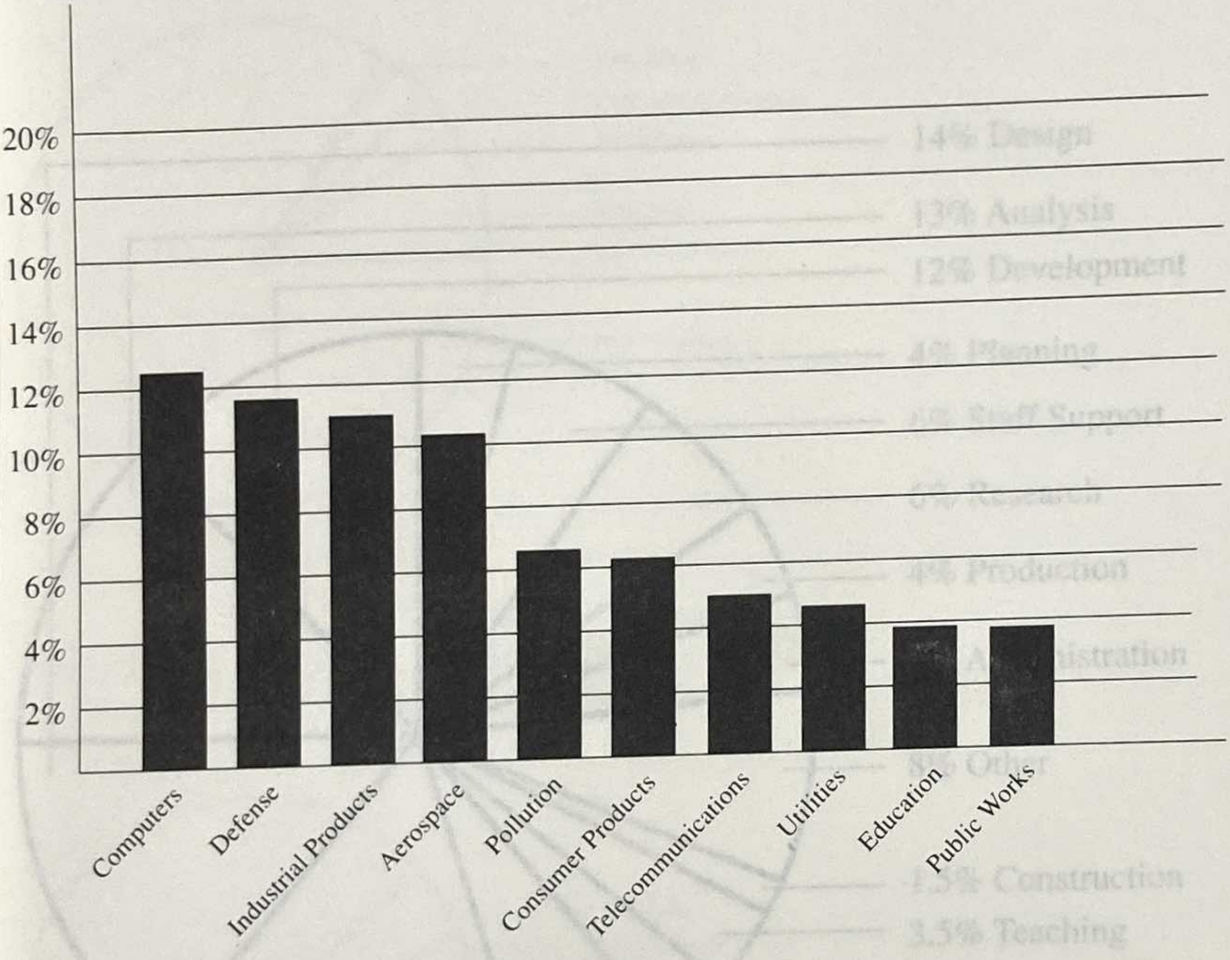
# Engineering Specialization



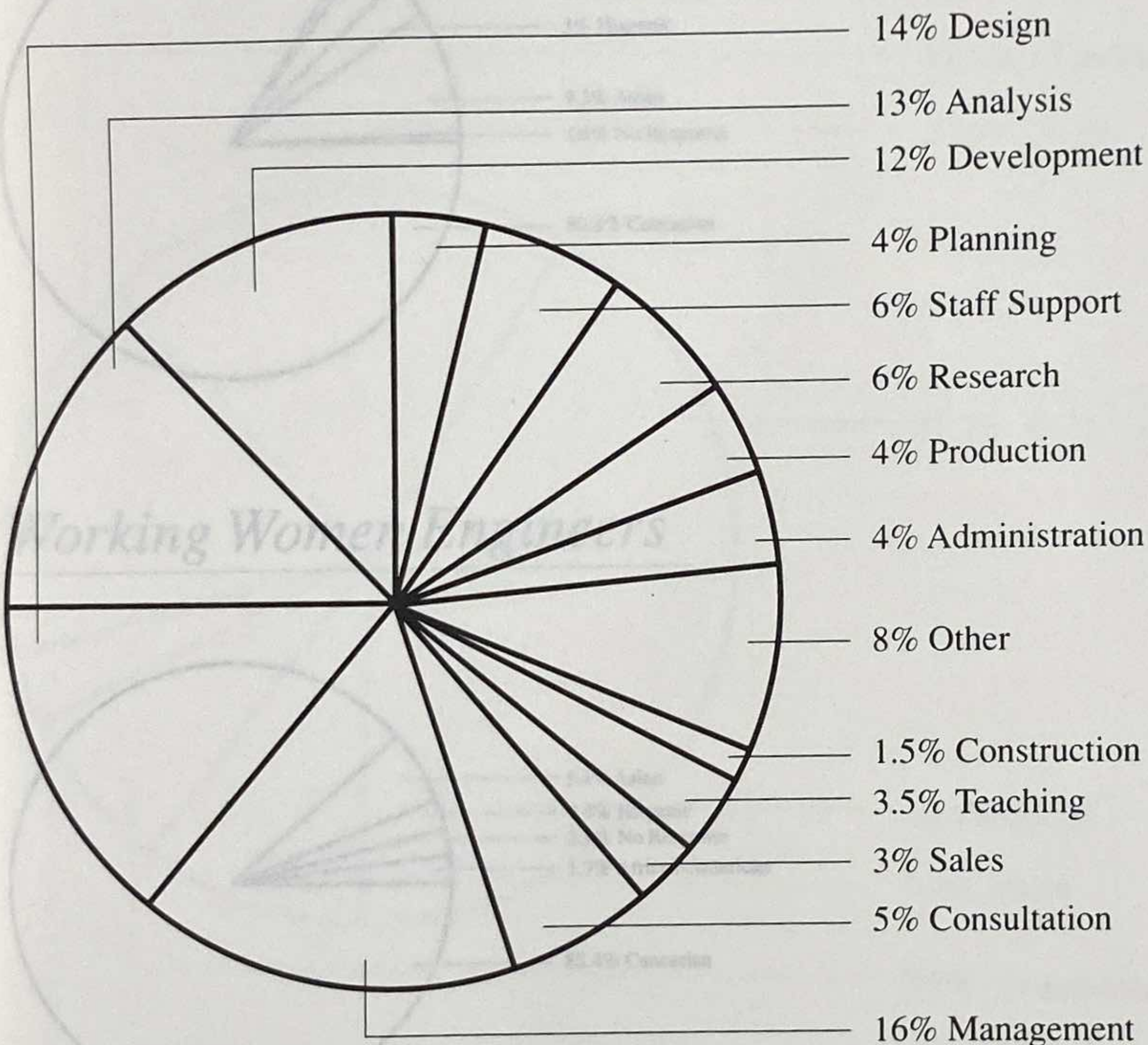
# Employment Area



# Primary Job Area

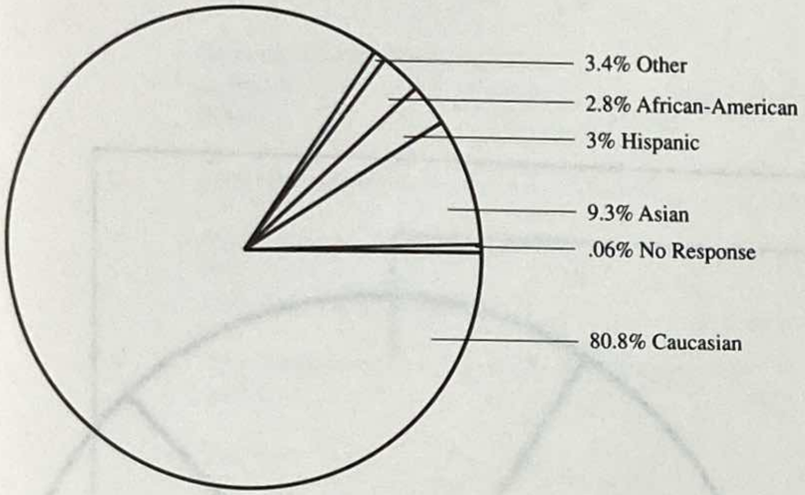


# Principal Job Function

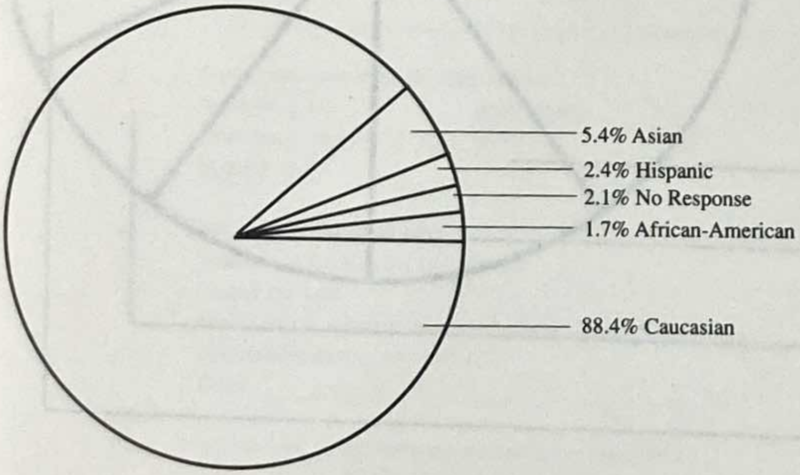


# Ethnicity

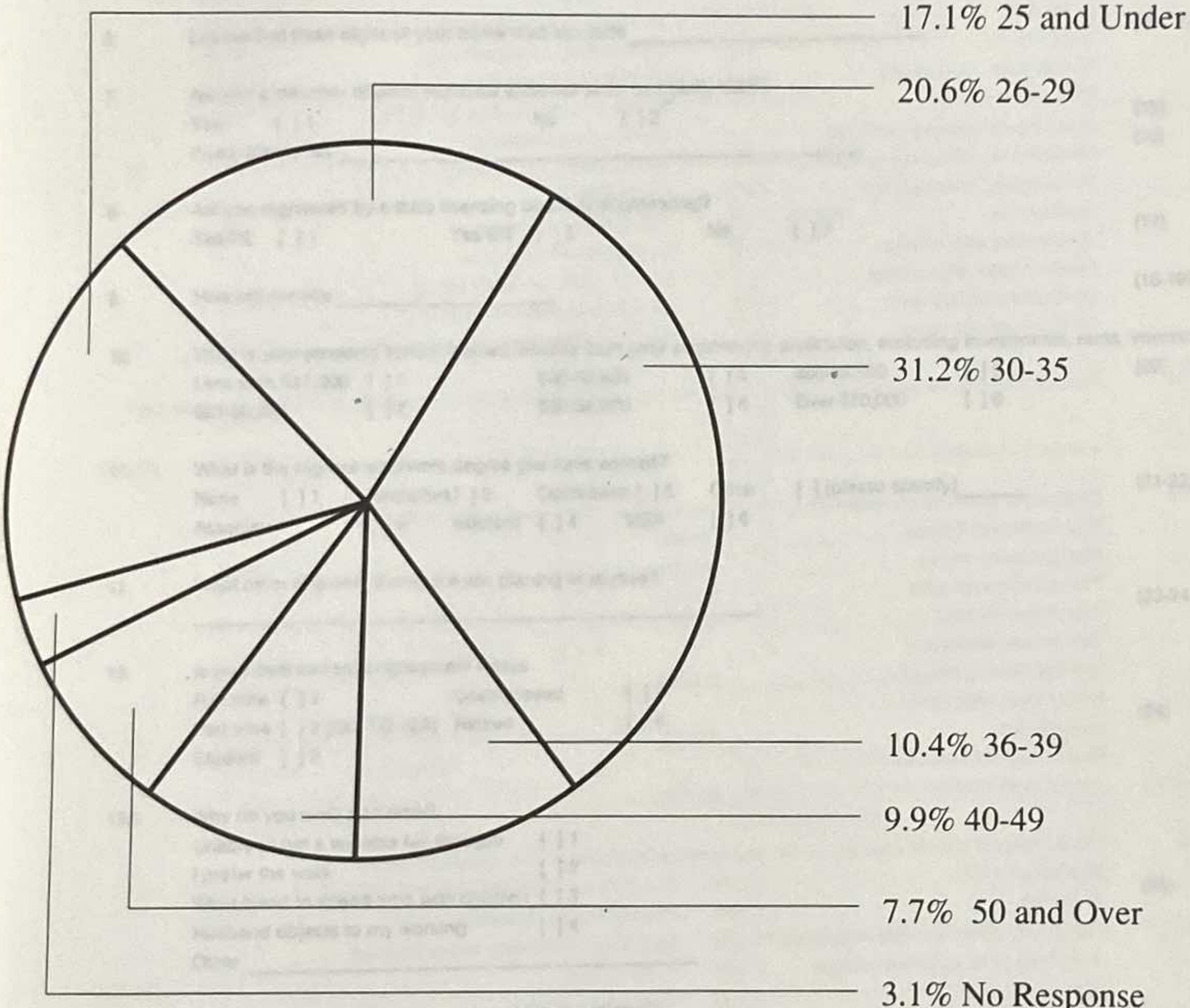
## *Undergraduate Female Engineers*



## *Working Women Engineers*



# Age


17.1% 25 and Under
20.6% 26-29
31.2% 30-35
10.4% 36-39
9.9% 40-49
7.7% 50 and Over
3.1% No Response

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# Cooper Union Women Engineers Survey

**THIS FIRST GROUP OF QUESTIONS ARE FACTUAL, ABOUT YOU AND ABOUT YOUR EXPERIENCE IN ENGINEERING**

Resp # (1-4)
Card 1 (5)

1. Your citizenship USA [ ] 1 Other [ ] 2 (6)

2. Your marital status
Currently married [ ] 1 Separated/Divorced[ ] 2 Single [ ] 3 Widowed [ ] 4 (7)

3. How many children are in your household under the age of 18? ________ (8-9)

4. If you do not have children, do you envision having children in the future?
Yes [ ] 1 No [ ] 2 (10)

5. Would you describe yourself as:
Caucasian [ ] 1 Hispanic [ ] 3 Other [ ] [Please specify] ________________ (11)
Oriental [ ] 2 African-American[ ] 4

6. List the first three digits of your home mail zip code ________________ (12-14)

7. Are you a member of other technical societies such as ASME, ISEE?
Yes [ ] 1 No [ ] 2 (15)
If yes, please list ________________ (16)

8. Are you registered by a state licensing board of engineering?
Yes-PE [ ] 1 Yes-EIT [ ] 2 No [ ] 3 (17)

9. How old are you ________________ (18-19)

10. What is your personal annual learned income from your engineering profession, excluding investments, rents, interest, etc.
Less than $21,000 [ ] 1 $40-49,999 [ ] 3 $60-69,999 [ ] 5 (20)
$21-30,999 [ ] 2 $50-59,999 [ ] 4 Over $70,000 [ ] 6

11. What is the highest academic degree you have earned?
None [ ] 1 Bachelors[ ] 3 Doctorates [ ] 5 Other [ ] [please specify]________ (21-22)
Associates [ ] 2 Masters [ ] 4 MBA [ ] 6

12. What other degrees, if any, are you planing to pursue?
________________ (23-24)

13. Is your own current employment status
Full time [ ] 1 Unemployed [ ] 4
Part time [ ] 2 [GO TO 13A] Retired [ ] 5 (24)
Student [ ] 3

13A. Why do you work part time?
Unable to get a suitable full time job [ ] 1
I prefer the work [ ] 2
Want/need to spend time with children [ ] 3 (25)
Husband objects to my working [ ] 4
Other ________________

14. If employed, is your employment engineering-related?
Yes [ ] 1 No [ ] 2 (26)

Continue to the next page

(27)

15. If unemployed, are you seeking employment?

Yes [ ] 1– Engineering related [ ] 1 (28)
Not engineering related [ ] 2

Full time [ ] 1
Part time [ ] 2 (29)
Temporary [ ] 3

No [ ] 2

16. For each degree you've earned, please give us your year of graduation and specialization [use codes provided below].

Degree: ________ Year: ________ : Specialization: ________ (30) (31-32) (33-34)
Degree: ________ Year: ________ : Specialization: ________ (35) (36-37) (38-39)
Degree: ________ Year: ________ : Specialization: ________ (40) (41-42) (43-44)

01–Aerospace engineering [ ]
02–Agricultural engineering [ ]
03–Architectural engineering [ ]
04–Automation/Control [ ]
05–Biochemical engineering [ ]
06–Biomedical engineering [ ]
07–Biology [ ]
08–Chemistry [ ]
09–Chemical engineering [ ]
10–Civil engineering [ ]
11–Computer science/business [ ]
12–Computer science/engineering [ ]
13–Computer science/math [ ]
14–Education [ ]
15–Electrical engineering [ ]
16–Electronics engineering [ ]
17–Engineering (general) [ ]
18–Engineering science [ ]
19–Environmental/sanitary engineering [ ]
20–Geological engineering [ ]
21–Industrial engineering [ ]
22–Management/business administration [ ]
23–Manufacturing engineering [ ]
24–Mathematics [ ]
25–Mechanical engineering [ ]
26–Metallurgical engineering [ ]
27–Mining engineering [ ]
28–Naval arch/marine engineering [ ]
29–Nuclear engineering [ ]
30–Petroleum engineering [ ]
31–Physics [ ]
32–Systems engineering [ ]
33–Tele-communications [ ]
34–Transportation engineering [ ]
35–Other engineering, specify ________________
36–Other, non-engineering, specify ________________

17. What field of specialization best describes your current position [please use the specialization codes listed above]?

________________________________ (45-46)

18. Concerning your employment history, would you tell us how many years have elasped since:

Your Bachelor's Degree ________ (47-48)
Your graduate degree ________ (49-50)
You've been employed ________ (51-52)
You've been retired ________ (53-54)
You've been employed (not engineering related) ________ (55-56)
You've been voluntarily unemployed ________ (57-58)
You've been involuntarily unemployed ________ (59-60)

19. Which category is most appropriate for your principal employer in your current position?

College/university [ ] 01
Consulting [ ] 02
Federal government-civilian employee [ ] 03
Junior college or technical institute [ ] 04
Local government [ ] 05
Military service [ ] 06
National laboratory [ ] 07
Nonprofit organization (other than school) [ ] 08
Private industry or business [ ] 09
Secondary, elementary or other school [ ] 10
Self-employed [ ] 11 (61-62)
State government [ ] 12
Utilities [ ] 13
Other [specify] [ ] ________________

Continue to the next page

20. Give the product(s) or service area(s) which best describe your current employer

| | | | |
|---|---|---|---|
| Agriculture and food | [ ] 01 | Computer software | [ ] 13 |
| Aircraft/spacecraft | [ ] 02 | Construction/civil engineering | [ ] 14 |
| Ceramics | [ ] 03 | Education and information service | [ ] 15 |
| Chemicals/allied products | [ ] 04 | Electrical and equipment | [ ] 16 |
| Computers | [ ] 05 | Machine/mechanical equipment | [ ] 17 |
| Metal fabricated products | [ ] 06 | Research | [ ] 18 |
| Metals (basic) | [ ] 07 | Research & development | [ ] 19 |
| Mining | [ ] 08 | Technical/electronic systems | [ ] 20 |
| Motor vehicles | [ ] 09 | Tele-communications | [ ] 21 |
| Nuclear | [ ] 10 | Utilities | [ ] 22 |
| Ordnance | [ ] 11 | Conglomerate | [ ] 23 |
| Petroleum | [ ] 12 | Other [specify] | [ ] ________________ |

(63-64)

21. Which area is a major portion of your work related to?

| | | | |
|---|---|---|---|
| Aerospace | [ ] 01 | Pollution | [ ] 09 |
| Computers | [ ] 02 | Public works | [ ] 10 |
| Consumer products | [ ] 03 | Robotics | [ ] 11 |
| Defense | [ ] 04 | Safety | [ ] 12 |
| Education | [ ] 05 | Tele-communications | [ ] 13 |
| Energy | [ ] 06 | Urban development | [ ] 14 |
| Health | [ ] 07 | Utilities | [ ] 15 |
| Industrial products/processes | [ ] 08 | Other [please specify] | ________________ |

(65-66)

22. What is your principal job function and other job functions that you perform?

| | Principal Job Function (67-68) | Other Job Functions (69-70) |
|---|---|---|
| Administration | [ ] 01 | [ ] 01 |
| Analysis | [ ] 02 | [ ] 02 |
| Consultation | [ ] 03 | [ ] 03 |
| Construction | [ ] 04 | [ ] 04 |
| Design | [ ] 05 | [ ] 05 |
| Development | [ ] 06 | [ ] 06 |
| Management | [ ] 07 | [ ] 07 |
| Planning | [ ] 08 | [ ] 08 |
| Production | [ ] 09 | [ ] 09 |
| Research | [ ] 10 | [ ] 10 |
| Staff support | [ ] 11 | [ ] 11 |
| Sales and service | [ ] 12 | [ ] 12 |
| Teaching | [ ] 13 | [ ] 13 |
| Other [please specify] | [ ] ________________ | ________________ |

23. Describe your present supervisory responsibilities:

| | | | |
|---|---|---|---|
| No regular supervision given | [ ] 1 | Supervision of project or section | [ ] 4 |
| Indirect or staff supervision | [ ] 2 | Management of major department, division or program | [ ] 5 |
| Supervision of team or unit | [ ] 3 | | |

(71)

24. Number of people regularly supervised

| | | | |
|---|---|---|---|
| None | [ ] 1 | 16 to 50 | [ ] 4 |
| 1 to 5 | [ ] 2 | 51 or more | [ ] 5 |
| 6 to 15 | [ ] 3 | | |

(72)

25. How many days per month do you spend on overnight business travel?

________________ (73-74)

Continue to the next page

26. How many employers have you had since you received your Bachelor's Degree?

____________________ (75-76)

27. Does your current place of employment have a child-care facility?
Yes [ ] 1 No [ ] 2 (77)
If yes, do you use it?
Yes [ ] 1 No [ ] 2 (78)
If yes, do you pay for it?
Yes [ ] 1 No [ ] 2 (79)

28. Does your employer have a flex-time policy?
Yes [ ] 1 No [ ] 2 (80)

Resp # (1-4)
Card 2 (5)

29. Do you have paid cleaning help at home on a regular basis?
Yes [ ] 1 No [ ] 2 (6)

30. Do you use paid child-care arrangements during the day on a regular basis?
Yes [ ] 1 No [ ] 2 (7)

THE FOLLOWING QUESTIONS ARE ONLY FOR THOSE PEOPLE WHO HAVE EVER BEEN MARRIED.

31. Is or was your husband educated as an engineer or scientist?
Yes [ ] 1 No [ ] 2 (8)

32. Do you perceive your husband's profession to be more, less, or equally prestigious as your own?
More [ ] 1 Less [ ] 2 Equally [ ] 3 (9)

33. Does your husband have more, less, or the same amount of formal education as you do?
More [ ] 1 Less [ ] 2 Same [ ] 3 (10)

34. Does your husband earn more, less, or the same (within $2,000) as you do?
More [ ] 1 Less [ ] 2 Same [ ] 3 (11)

35. Would you describe your husband as an equal partner in the household responsibilities?
Yes [ ] 1 No [ ] 2 (12)

36. Would you describe your husband as an equal partner in the child raising responsibilities?
Yes [ ] 1 No [ ] 2 (13)

37. Would your husband leave his current job to move with you if you received an attractive job offer across the country?
Yes [ ] 1 No [ ] 2 (14)

38. Would you leave your current job to move with your husband if he received an attractive job offer across the country?
Yes [ ] 1 No [ ] 2 (15)

39. To what extent do you agree with the following statement? Your work creates serious conflict in your marriage.
Strongly agree [ ] 1 Somewhat disagree [ ] 2 Somewhat agree [ ] 3 Strongly disagree [ ] 4 (16)

Continue to the next page

**IN THE FINAL SERIES, QUESTIONS ARE ASKED ABOUT YOUR ATTITUDES TO TOWARD ENGINEERING.**

40. Do you have a family member who is/was an engineer

Mother [ ] 1 Father [ ] 2 Brother [ ] 3 Sister [ ] 4 Other (specify)____________ (17)

41. In your experience, who of the following were strongly supportive, neutral or discouraging towards your studying engineering?

| | Supportive | Neutral | Discouraging | |
|---|---|---|---|---|
| Your mother | [ ] 1 | [ ] 2 | [ ] 3 | (18) |
| Your father | [ ] 1 | [ ] 2 | [ ] 3 | (19) |
| Other family members [Please specify]________ | [ ] 1 | [ ] 2 | [ ] 3 | (20) |
| Friends of the family | [ ] 1 | [ ] 2 | [ ] 3 | (21) |
| High school teachers | [ ] 1 | [ ] 2 | [ ] 3 | (22) |
| High school guidance counselors | [ ] 1 | [ ] 2 | [ ] 3 | (23) |
| Your high school friends | [ ] 1 | [ ] 2 | [ ] 3 | (24) |
| Undergrad math and science professors | [ ] 1 | [ ] 2 | [ ] 3 | (25) |
| Undergrad engineering professors | [ ] 1 | [ ] 2 | [ ] 3 | (26) |
| Fellow male engineering students | [ ] 1 | [ ] 2 | [ ] 3 | (27) |
| Fellow female engineering students | [ ] 1 | [ ] 2 | [ ] 3 | (28) |
| Your college friends | [ ] 1 | [ ] 2 | [ ] 3 | (29) |
| The environment in your undergraduate college | [ ] 1 | [ ] 2 | [ ] 3 | (30) |
| The environment in your grad school | [ ] 1 | [ ] 2 | [ ] 3 | (31) |
| Other, specify________________________________ | | | | (32-33) |

42. In your first job out of college, were you able to network with other women engineers in the company?

Often [ ] 1 Sometimes [ ] 2 Never [ ] 3 (34)

43. Do you network with other women engineers in the company in your current job?

Often [ ] 1 Sometimes [ ] 2 Never [ ] 3 (35)

Continue to the next page

44. As a woman engineer, do you agree or disagree with the following statements at your current place of employment?

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| I feel I have to work harder than the male engineers doing comparable jobs. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (36) |
| I am paid a comparable salary to male engineers doing similar work. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (37) |
| The merit raises I receive are gender-blind. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (38) |
| I am sometimes subjected to any form of harassment because I am a female. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (39) |
| I feel promotions come to me at a comparable rate to the male engineers in comparable jobs. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (40) |
| I feel I can rise to top administration in this organization. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (41) |
| My company's maternity-leave plan permits me to have a family without professional penalty. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (42) |

45. As a woman engineer, do you agree or disagree with the following statements at your current place of employment?

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| The reality of being a female in engineering meets the expectations I had while I was an undergraduate. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (43) |
| I feel the organization utilizes me to my fullest potential. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (44) |
| I am overqualified for the job I am doing. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (45) |
| I feel that my job offers me opportunities to learn and grow. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (46) |
| I am excluded from a decision-making capacity by the males in my organization. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (47) |
| My suggestions and complaints are taken seriously by my male supervisors. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (48) |

Continue to the next page

(QUESTION 45 CONTINUED)

As a woman engineer, do you agree or disagree with the following statements at your current place of employment?

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| The men I work with are intimidated by me because I am a female engineer. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (49) |
| I view ethical questions on the job differently from the male engineers I work with. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (50) |
| In my group my ideas are given as much consideration as those of my male colleagues. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (51) |
| I find business travel with my male colleagues to be comfortable. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (52) |
| I feel there is no opportunity for me to advance professionally. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (53) |
| I feel that the wives of my male colleagues are threatened by me. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (54) |
| My job is generally interesting. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (55) |
| I feel I do important work. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (56) |

46. As a woman engineer, to what extent do you agree with the following statements about careers in engineering?

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| I am disappointed by my experiences in the engineering profession. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (57) |
| I would like to change fields out of engineering. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (58) |
| I feel alone and isolated much of the time on the job because of my gender. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (59) |
| An engineering career has met the financial expectations I initially had. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (60) |
| I feel the engineering profession is respected. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (61) |

Continue to the next page

(QUESTION 46 CONTINUED)

**As a woman engineer, to what extent do you agree with the following statements about careers in engineering?**

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| I feel that other people perceive me as less feminine because I am an engineer. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (62) |
| I feel that my profession intimidates people whom I meet socially. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (63) |
| My husband or boyfriend finds it difficult to deal with the fact that most of my busimess colleagues are men. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (64) |
| My husband or boyfriend finds my business travel with male colleagues difficult to accept. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (65) |
| My engineering responsibilities leave too little time to pursue other interests. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (66) |

47. To what extent do you agree with the following statements about yourself?

| | Strongly Agree | Somewhat Agree | Somewhat Disagree | Strongly Disagree | |
|---|---|---|---|---|---|
| I was a "tomboy." | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (67) |
| I have always been confident. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (68) |
| I am a shy person. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (69) |
| I have always thought of myself as a physically attractive person. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (70) |
| Being an engineering does not decrease my femininity. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (71) |
| I have always been a very good student. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (72) |
| I have more female friends than male friends. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (73) |
| I am an assertive person. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (74) |
| I am a leader. | [ ] 1 | [ ] 2 | [ ] 3 | [ ] 4 | (75) |

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48. Which of the following statements about yourself best describe why you chose to study engineering? [Choose no more than 3]

I expected a good potential salary. [ ] 01

I expected to do interesting work. [ ] 02

I expected opportunities to solve societal problems. [ ] 03

I wanted to meet men. [ ] 04

I expected many job offers. [ ] 05

I liked the challenge of solving problems. [ ] 06

I wanted a career which did not require graduate study. [ ] 07

I wanted a career where I did not have to deal with people. [ ] 08

I wanted a career where written and oral skills are important. [ ] 09

I wanted to study the hardest possible undergraduate major to prove I could do it. [ ] 10

I wanted a profession that is transferable throughout the world. [ ] 11

I wanted to make a statement about being really different from other women. [ ] 12

Other [specify]______________________ [ ] (75-76)

49. Within the past two weeks, outside of work, have you:

Finished a non-technical book? [ ] 01

Prepared a complete meal for friends or family? [ ] 02

Gone out to the movies? [ ] 03

Attended a concert or theatrical performance? [ ] 04

Participated in sports or physical activity? [ ] 05

Entertained in your home? [ ] 06

Had a manicure? [ ] 07

Went to a beauty salon? [ ] 08

Shopped for clothes? [ ] 09

Sewed? [ ] 10

Attended a sports event? [ ] 11

(77-78)

Additional comments: ______________________ (79-80)

Thanks for your participation

# THE ALBERT NERKEN SCHOOL OF ENGINEERING
## The Cooper Union for the Advancement of Science and Art

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